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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,325	08/18/2003	Stanley L. Lehmann	LAA-106-US	2874
31217	7590	07/20/2006	EXAMINER	
LOCTITE CORPORATION 1001 TROUT BROOK CROSSING ROCKY HILL, CT 06067			STAICOVICI, STEFAN	
			ART UNIT	PAPER NUMBER
			1732	
DATE MAILED: 07/20/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/642,325

Applicant(s)

LEHMANN ET AL.

Examiner

Stefan Staicovici

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-51 is/are pending in the application.
- 4a) Of the above claim(s) 7-16, 24-32, 39, 41, 42, 44, 45, 47, 48, 50 and 51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 17-23, 33-38, 40, 43, 46 and 49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicants' amendment filed May 8, 2006 has been entered. Claims 1-4 and 6-51 are pending in the instant application.

### ***Election/Restrictions***

2. This application contains claims 7-16, 24-32, 39, 41-42, 44-45, 47-48, 50 and 51 are drawn to an invention nonelected with traverse in the response filed January 10, 2006. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-4 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Murai *et al.* (US 2004/0185733 A1).

Murai *et al.* (US 2004/0185733 A1) teach the claimed resin transfer molding process for making a molded product including, providing a resin having an ABS and a benzoxazine component (heat curable composition), placing a reinforcing fiber woven fabric in a mold, injecting (elevated pressure) said resin into said mold, heating said mold to a first temperature such as to reduce the viscosity of the resin and allow wetting of said reinforcing fiber woven fabric, increasing the temperature to a second, higher temperature such as to cure said resin and form said molded product (see paragraphs [0073], [0077]-[0079] and [0099]). Although Murai *et al.* (US 2004/0185733 A1) does not specifically teach that the resin viscosity has the characteristic to increase within 1-10 hours by 100% at the injection temperature, because Murai *et al.* (US 2004/0185733 A1) teach the claimed composition being used in the claimed process, it is submitted that the composition of Murai *et al.* (US 2004/0185733 A1) will have the same characteristics as those claimed. Hence, it is submitted that Murai *et al.* (US 2004/0185733 A1) teach that the resin viscosity increases within 1-10 hours by 100% at the injection temperature.

Regarding claim 3, Murai *et al.* (US 2004/0185733 A1) teach a resin having an ABS, a benzoxazine, a phenolic and an epoxy component (heat curable composition) (see paragraphs [0073]). Further, Murai *et al.* (US 2004/0185733 A1) teach a hardening agent (curing agent) (see paragraph [007]).

In regard to claim 4, Murai *et al.* (US 2004/0185733 A1) teach a resin composition having a viscosity of less than 500 mPa·sec (centipoises)

Specifically regarding claim 6, Murai *et al.* (US 2004/0185733 A1) teach a carbon fiber fabric (see paragraph [0099]).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murai *et al.* (US 2004/0185733 A1) in view of Jang *et al.* (Journal 1998).

Murai *et al.* (US 2004/0185733 A1) teach the basic claimed process as described above.

Regarding claim 2, although Murai *et al.* (US 2004/0185733 A1) teach a resin having an ABS component, Murai *et al.* (US 2004/0185733 A1) do not teach an ABS toughening agent having secondary amine terminal groups. However, the use of an ABS toughening agent having secondary amine terminal groups is well known as evidenced by Jang *et al.* (Journal 1998) who teach the use of an ABS toughening agent having secondary amine terminal groups in combination with polybenzoxazine (see Abstract). Therefore, it would have been obvious for one of ordinary skill in the art to have provided an ABS toughening agent having secondary amine terminal groups as taught by Jang *et al.* (Journal 1998) in the composition in the process of Murai *et al.* (US 2004/0185733 A1) because, Jang *et al.* (Journal 1998) specifically teach that the mechanical properties of the resulting molded article increase, hence providing for an improved product and also because of its known status.

7. Claims 17-18, 20-23, 33 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai *et al.* (US 2004/0185733 A1) in view of Applicants' Admitted Prior Art (APA).

Murai *et al.* (US 2004/0185733 A1) teach the basic claimed resin transfer molding process for making a molded product including, providing a resin having an ABS and a benzoxazine component (heat curable composition), placing a reinforcing fiber woven fabric in a mold, injecting (elevated pressure) said resin into said mold, heating said mold to a first temperature such as to reduce the viscosity of the resin and allow wetting of said reinforcing fiber woven fabric, increasing the temperature to a second, higher temperature such as to cure said resin and form said molded product (see paragraphs [0073], [0077]-[0079] and [0099]).

Regarding claim 17, although Murai *et al.* (US 2004/0185733 A1) teach a low-pressure injection method (see paragraph [0077]), Murai *et al.* (US 2004/0185733 A1) do not specifically teach a vacuum assisted molding process. APA teaches that it is known in vacuum assisted molding process to use vacuum to infuse the resin (see paragraph [0006] of the original disclosure), hence a low injection process as suggested by Murai *et al.* (US 2004/0185733 A1). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a vacuum as taught by APA in the process of Murai *et al.* (US 2004/0185733 A1) because of known advantages such as reduced porosity, increased properties of the resulting molded product and also because Murai *et al.* (US 2004/0185733 A1) suggests a vacuum assisted molding process by specifically teaching a low-pressure injection method (see paragraph [0077]).

In regard to claim 18, although Murai *et al.* (US 2004/0185733 A1) in view of APA does not teach a dispersing (resin distribution) medium, the use of a dispersing medium is well known. It would have been obvious for one of ordinary skill in the art to have provided a dispersing medium in the process of Murai *et al.* (US 2004/0185733 A1) in view of APA due to a variety of known advantages such as improved uniform resin flow, reduced resin rich or poor areas and improved properties due to a more uniform structure.

Regarding claims 20 and 35, Murai *et al.* (US 2004/0185733 A1) teach a resin having an ABS, a benzoxazine, a phenolic and an epoxy component (heat curable composition) (see paragraphs [0073]). Further, Murai *et al.* (US 2004/0185733 A1) teach a hardening agent (curing agent) (see paragraph [007]).

In regard to claims 21 and 36, Murai *et al.* (US 2004/0185733 A1) teach a resin composition having a viscosity of less than 500 mPa·sec (centipoises)

Specifically regarding claims 22-23 and 37-38, Murai *et al.* (US 2004/0185733 A1) teach a curing time of two hours and a carbon fiber fabric (see paragraph [0099]).

Regarding claim 33, although Murai *et al.* (US 2004/0185733 A1) teach a low-pressure injection method (see paragraph [0077]), Murai *et al.* (US 2004/0185733 A1) do not specifically teach a film infusion molding process. APA teaches that resin film infusion is well known as a resin transfer molding process (see paragraphs [0007]-[0009] of the original disclosure), hence a low injection process as suggested by Murai *et al.* (US 2004/0185733 A1). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a resin film as taught by APA in the process of Murai *et al.* (US 2004/0185733 A1) because of known advantages that a

resin film infusion process provides such as increased resin flow control and the ability to mold large structures and also because Murai *et al.* (US 2004/0185733 A1) suggests a resin infusion molding process by specifically teaching a low-pressure injection method (see paragraph [0077]). Further, it is noted that Murai *et al.* (US 2004/0185733 A1) teach a wide variety of equivalent injection/infusion molding process (see paragraph [0096]).

8. Claims 19 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai *et al.* (US 2004/0185733 A1) in view of Applicants' Admitted Prior Art (APA) and in further view of Jang *et al.* (Journal 1998).

Murai *et al.* (US 2004/0185733 A1) in view of APA teach the basic claimed process as described above.

Regarding claims 19 and 34, although Murai *et al.* (US 2004/0185733 A1) in view of APA teach a resin having an ABS component, Murai *et al.* (US 2004/0185733 A1) in view of APA do not teach an ABS toughening agent having secondary amine terminal groups. However, the use of an ABS toughening agent having secondary amine terminal groups is well known as evidenced by Jang *et al.* (Journal 1998) who teach the use of an ABS toughening agent having secondary amine terminal groups in combination with polybenzoxazine (see Abstract). Therefore, it would have been obvious for one of ordinary skill in the art to have provided an ABS toughening agent having secondary amine terminal groups as taught by Jang *et al.* (Journal 1998) in the composition in the process of Murai *et al.* (US 2004/0185733 A1) in view of APA because, Jang *et al.* (Journal 1998) specifically teach that the mechanical properties of the



resulting molded article increase, hence providing for an improved product and also because of its known status.

9. Claim 40, 43, 46 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai *et al.* (US 2004/0185733 A1) in view of Musa (US Patent No. 6,620,905 B1).

Murai *et al.* (US 2004/0185733 A1) teach the basic claimed process as described above.

Regarding claims 40, 43, 46 and 49, although Murai *et al.* (US 2004/0185733 A1) teach a benzoxazine based resin, Murai *et al.* (US 2004/0185733 A1) does not specifically teach the claimed chemical compound. Musa ('905) teach a potting (molding) curable benzoxazine composition having the claimed structure (see col. 1, line 38 through col. 2, line 65). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a curable benzoxazine composition having the structure of Musa ('905) in the process of Murai *et al.* (US 2004/0185733 A1) because, Murai *et al.* (US 2004/0185733 A1) teach that such curable benzoxazine compositions provide for improved characteristics, whereas Murai *et al.* (US 2004/0185733 A1) teach that such resins provide for improved flame and heat resistance, hence providing for an improved product and also because Murai *et al.* (US 2004/0185733 A1) teach a benzoxazine based resin, hence suggesting the structure of Musa ('905).

#### ***Response to Arguments***

10. Applicants' remarks filed May 8, 2006 have been fully considered.

11. Applicants' arguments against the teachings of Murai *et al.* (US 2004/0185733 A1), Jang *et al.* (Journal 1998) and Musa ('905) individually (see pages 31 and 34 of the amendment filed

5/8/2006), it is noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

12. Applicants argue that “[n]owhere in Murai...is there a disclosure, let alone a suggestion or motivation, for the heat curable composition to increase viscosity by 100% under the first elevated temperature and elevated pressure...in the range of 1 to 10 hours at the first temperature...the injection temperature.” In response, it is first noted that Applicants’ argument is drawn to a property of the heat curable composition. Second, it is noted that Murai *et al.* (US 2004/0185733 A1) teach the claimed resin transfer molding process for making a molded product including, a heat curable composition having an ABS and a benzoxazine component (see paragraphs [0073], [0077]-[0079] and [0099]). As such, because Murai *et al.* (US 2004/0185733 A1) teach the claimed composition being used in the claimed process, it is submitted that the composition of Murai *et al.* (US 2004/0185733 A1) will have the same characteristics as those claimed, i.e., “...increase viscosity by 100% under the first elevated temperature and elevated pressure...in the range of 1 to 10 hours at the first temperature...the injection temperature.” See MPEP §2112.01(I), citing, *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) (Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established.”). Further, MPEP §2112(V) states that,

“[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

13. Applicants argue that, “there is a need for other resin systems to be used in these advanced processes, particularly a resin system with improved performance properties” (see page 36 of the amendment filed 5/8/2006). In response, it is noted that under MPEP §2144.01, “[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.” In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968). In this case, Murai *et al.* (US 2004/0185733 A1) teach a low-pressure injection method (see paragraph [0077]). APA teaches that it is known in vacuum assisted molding process to use vacuum to infuse the resin (see paragraph [0006] of the original disclosure), hence a low injection process as suggested by Murai *et al.* (US 2004/0185733 A1). Further, APA teaches that resin film infusion is well known as a resin transfer molding process (see paragraphs [0007]-[0009] of the original disclosure), hence a low injection process as suggested by Murai *et al.* (US 2004/0185733 A1). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a vacuum as taught by APA in the process of Murai *et al.* (US 2004/0185733 A1) because of known advantages such as reduced porosity, increased properties of the resulting molded product and also because Murai *et al.* (US 2004/0185733 A1) suggests a vacuum

assisted molding process by specifically teaching a low-pressure injection method (see [0077]) by using a bagging film (see ¶ [0064]). Also, it would have been obvious for one of ordinary skill in the art to have provided a resin film as taught by APA in the process of Murai *et al.* (US 2004/0185733 A1) because of known advantages that a resin film infusion process provides such as increased resin flow control and the ability to mold large structures and also because Murai *et al.* (US 2004/0185733 A1) suggests a resin infusion molding process by specifically teaching a low-pressure injection method (see paragraph [0077]) by using a bagging film (see ¶ [0064]). Further, it is noted that Murai *et al.* (US 2004/0185733 A1) teach a wide variety of equivalent injection/infusion molding process (see paragraph [0096]).

14. In response to applicant's argument that there is no suggestion to combine the references (see page 37 of the amendment filed 5/8/2006), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See, In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the secondary references were not used to show that the resin viscosity of the heat curable composition increases by 100%, as Applicants argue (see page 37 of the amendment filed 5/8/2006). The teachings of Jang *et al.* (Journal 1998) were used to show an ABS toughening agent having secondary amine terminal groups is known. Further, the teachings of Musa ('905) were used to show the claimed chemical compound of a benzoxazine based resin. Furthermore, it is noted that all references, Murai *et al.*

(US 2004/0185733 A1), Jang *et al.* (Journal 1998) and Musa ('905) teach a benzoxazine based resin.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


#### ***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD

A handwritten signature in black ink, appearing to read 'Stefan Staicovici', written in a cursive style.

Primary Examiner

7/14/06

AU 1732

July 14, 2006